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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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Technical specifications for environmental vibration monitoring

环境振动监测技术规范

(English Translation)

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Foreword

This standard is formulated for the purpose of implementing the Environmental Protection Law of the People's Republic of China and standardizing the monitoring of environmental vibration in China.

This standard specifies the performance of environmental vibration monitoring instruments, measuring conditions, measuring point layout, vibration pickup installation, sampling and Data analysis, measurement period and measurement, records, quality assurance and quality control and other technical requirements.

This standard is released for the first time.

This standard by the Environmental Protection Department of Environmental Monitoring Division and Science and Technology Standards Division to develop.

This standard was drafted. China Environmental Monitoring Station, Changsha Environmental Protection Vocational and Technical College, Hunan Provincial Environmental Monitoring Center Station.

This standard MEP approved on December 28, this standard since April 1, 2018 come into operation.

This standard is interpreted by the MEP.

Environmental vibration monitoring technical specifications

1 Scope of application

This standard specifies the performance of environmental vibration monitoring instruments, measuring conditions, measuring point layout, vibration pickup installation, sampling and Data analysis, measurement period and measurement, records, quality assurance and quality control and other technical requirements.

This standard applies to environmental vibration monitoring.

2 Normative references

This standard references the following documents or the terms of them. For undated references, the effective version applies in this standard.

GB 10070 urban area environmental vibration standard GB 10071 urban area environmental vibration measurement method GB/T 23716 human response to vibration measuring instruments

3 Terms and definitions

GB 10071 defined and the following terms and definitions apply to this standard.

Environmental vibration monitoring in order to grasp the impact of the vibration generated in industrial production, construction, transportation and social life on the surrounding environment Monitoring carried out.

Equivalent continuous Z-level equivalent continuous Z-vibration level in the provisions of the measuring period Z vibration level average energy, denoted as VLZeq, in decibels, dB.

By definition, the equivalent continuous Z-vibration level is expressed as.

Sampling frequency

Sampling rate, also known as sampling speed or sampling rate, refers to the number of samples taken per second from a continuous signal and forming a discrete signal the number, expressed in fs, in Hertz, Hz.

Window function window function in digital signal processing, in order to reduce or eliminate spectral energy leakage and fence effects, different interception functions the signal truncation, function called window function, referred to as the window.

4 Instrument performance

4.1

should be used in line with GB/T 23716 environmental vibration meter performance requirements or other to meet the same function of vibration measuring instruments.

4.2

Vibration pickup voltage sensitivity should be greater than 400 mV/g.

4.3

The frequency range of vibration pickup shall include at least the frequency specified in GB 10070.

4.4

The lower limit of measurement of the instrument should not be higher than 50 dB and the upper limit of measurement should not be lower than 100 dB.

4.5

Measurement should include the equivalent continuous Z vibration level, the maximum Z vibration level, the cumulative percentage Z vibration level and so on.

5 Measurement conditions

5.1

Measurement process, vibration source should be in normal working condition.

5.2

Measurement should be no rain, no lightning, no strong winds weather conditions.

5.3

During the measurement, other environmental factors that can affect the measured value should be avoided, such as drastic temperature gradient changes, Magnetic field caused by interference. When necessary, consider the appropriate shelter (such as adding protective cover, etc.).

5.4

Measurement process, should avoid other interference factors, such as high noise, walking and other interference caused.

6 Measuring point layout

6.1

measuring point should be placed in the test building affected by the vibration source relatively large position, through the site to consult or interval a certain distance cloth Set multiple test points to determine.

6.2

The distance between the measuring point and the measured building shall be in accordance with the provisions of GB 10070.

6.3

Outdoor measurement process, below the measuring point basement, cellar or shelter should be avoided as far as possible.

6.4

When necessary, the measuring point can be placed in the center of the floor of the building indoor, it is strictly prohibited to be placed in the bottom basement. According to the actual situation Conditions, the use of the measured function of the room within the building, size (room size, floor thickness, etc.), floors and other properties should be different Test points shall be laid out separately, including the most affected locations.

6.5

According to the actual demand, different attributes of buildings (building functions, building height, etc.) can be deployed test points.

6.6

When the front of the building does not have the measurement conditions or interference with other factors, the measurement points can be laid in the environmental vibration conditions and the relative location of the place.

7 Vibration pickup installation

7.1

Sensitivity of the Vibration Picker The direction of the main shaft should be kept in the vertical direction, and no inclination and additional vibration shall occur during the test.

7.2

Vibration picker should be smooth on a flat, solid ground (such as hard soil, concrete, asphalt pavement, etc.), not Directly placed on the grass, sand, snow, carpets, wooden floors and other soft ground.

7.3

All three points of contact or bottom of the vibration exciter should touch the ground. When the vibration pickup can not be in close contact with the ground, it should be used Magnetic base adsorption, quick-drying powder bonding and other rigid connection to the vibration picker fixed on the ground, prohibit the use of soft plastic and other soft connection Fixed pickup.

7.4

Measurement sites such as grass, sand, snow, carpets and other soft ground, the need to use auxiliary measuring devices, and monitoring Record description. The three legs of the auxiliary measuring device must all penetrate into the ground so that the underside of the auxiliary measuring device touches the ground, the vibration picker is placed in the middle